Amendments to claims under 37 C.F.R. 1.173(b):

10. A method of transmitting an RF signal between a base station and at least one remote unit that wirelessly communicates with at least one wireless unit, the method comprising:

generating a digitized representation of the RF signal at the base station, wherein the RF signal is a combined analog signal representing a plurality of outbound wireless transmissions for a set of channels; and

transmitting the digitized representation to the remote unit.

14. A method of transmitting wireless transmissions between a base station and a remote unit that wirelessly communicates with at least one wireless unit, the method comprising:

generating a set of RF analog modulated channel carriers representing outbound transmissions, wherein each RF analog modulated channel carrier corresponds, in a one-to-one relationship, to a channel in a set of channels used by the remote unit;

combining the set of RF analog modulated channel carriers into a combined RF signal;

generating a digitized representation of the combined RF signal at the base station; and

transmitting the digitized representation to the remote unit.

18. A method of transmitting RF signals between a base station and a remote unit that wirelessly communicates with at least one wireless unit, the method comprising:

receiving a plurality of outbound input signals from a network, wherein the plurality of outbound input signals correspond to a set of channels used by the remote unit;

generating an RF analog outbound channel carrier for each channel in the set of channels used by the remote unit;

analog modulating each of the plurality of outbound input signals onto a corresponding one of the RF analog outbound channel carriers, thereby generating a plurality of RF analog modulated channel carriers;

combining the plurality of RF analog modulated channel carriers into a combined RF signal;

generating a digitized representation of the combined RF signal at the base station; and

transmitting the digitized representation to the remote unit.

19. A method of transmitting RF signals between a remote unit and a base station, the method comprising:

receiving at the remote unit an inbound combined RF signal comprising a plurality of inbound RF signals from a plurality of mobile units;

generating a digitized representation of the combined RF signal at the remote unit; and

transmitting the digitized representation to the base station.

20. A method of transmitting RF signals between a remote unit and a base station, the method comprising:

receiving at the remote unit a combined RF signal comprising a plurality of simultaneous inbound RF signals in a set of channels from a plurality of mobile units;

digitizing the combined RF signal; and

transmitting the digitized combined RF signal to the base station.

23. A method of transmitting RF signals between a base station and a plurality of mobile units, the method comprising:

receiving a plurality of outbound input signals from a network, wherein the plurality of outbound input signals correspond to a set of channels used by a remote unit;

generating an RF analog outbound channel carrier for each channel in the set of channels used by the remote unit;

analog modulating each of the plurality of outbound input signals onto a corresponding one of the RF analog outbound channel carriers, thereby generating a plurality of RF analog modulated channel carriers;

combining the plurality of RF analog modulated channel carriers into a first combined RF signal;

generating a digitized representation of the first combined RF signal at the base station;

transmitting the digitized representation to the remote unit;

generating a second combined RF signal from the digitized representation of the first combined RF signal at the remote unit; and

broadcasting the second combined RF signal from the remote unit to the plurality of mobile units.

Please cancel claims 24-58 (which were previously added to the reissue application) without prejudice.

Please add the following new claims 59-105:

59. A first communication device for communicating with a second communication device in a wireless communications system over a communication medium, the first communication device comprising:

a digital unit that outputs a digital representation of an analog signal, the analog signal comprising a single signal that includes a plurality of RF channels, the plurality of RF channels including at least one of information being transmitted to a plurality of remote wireless communication units and information being transmitted from the plurality of remote wireless communication units;

wherein the first communication device transmits a transmission signal over the communication medium to the second communication device;

wherein the transmission signal includes the digital representation; and

wherein the second communication device is physically remote from the first device.

60. The first communication device of claim 59 wherein the first communication device is an antenna unit in a wireless telephone communication system and the second communication device is located at a base station.

61. The first communication device of claim 60 wherein the first communication device includes an antenna for receiving wireless RF telephone transmissions from mobile units located in a cell associated with the antenna unit.

62. The first communication device of claim 60 wherein the digital unit is a broadband digitizer.

63. The first communication device of claim 60 wherein the transmission signal includes one of control data and error checking data.

64. The first communication device of claim 60 wherein the digital representation comprises a first digital representation and wherein the transmission signal further includes a second digital representation that has been multiplexed with the first digital representation.

65. The first communication device of claim 64 wherein the second digital representation is a diversity signal.

66. The first communication device of claim 64 wherein the second digital representation is a representation of at least a portion of a radio frequency spectrum, the portion comprising a plurality of channels.

67. The first communication device of claim 60 wherein the transmission signal includes at least one of control data and error checking data.

68. The first communication device of claim 60 wherein the digital representation is a first digital representation and wherein the transmission signal includes a second digital representation multiplexed with the first digital representation.

69. The first communication device of claim 68 wherein the second digital representation is a diversity signal.

70. The first communication device of claim 59 wherein the first communication device is located at a base station and the second communication device is an antenna unit in a wireless telephone communication system.

71. The first communication device of claim 70 wherein the transmission signal includes one of control data and error checking data.

72. The first communication device of claim 70 wherein the digital unit is a broadband digitizer.

73. The first communication device of claim 70 wherein the transmission signal includes at least one of control data and error checking data.

74. The first communication device of claim 59, wherein the communication medium includes an optical fiber.

75. The first communication device of claim 74 further comprising a transmitter and wherein the optical fiber couples the transmitter to the second communication device.

76. The first communication device of claim 59, wherein the first communication device includes a digitally modulated laser.

77. In a wireless communication system, a method of transmitting communications between a first communication device and a second communication device, the first communication device comprising an antenna unit associated with a cell, the second communication device remotely located from the first communication device, the method comprising:

receiving at the second communication device a composite analog signal that as a single composite signal includes a plurality of RF channels;

digitizing the composite analog signal into a digitized signal representing the plurality of RF channels;

transmitting the digitized signal over a communication medium from the second communication device to the first communication device.

78. The method of claim 77 wherein the second communication device is located at a base station.

79. The method of claim 78 wherein the receiving is performed at the base station.

80. The method of claim 78 wherein the digitized signal comprises a first digitized signal and wherein the method further comprises transmitting a second digitized signal over the communications medium from the first communication device to the second communication device.

81. The method of claim 80 further comprising combining at the base station a plurality of separate analog outbound telephone signals into the composite analog signal.

82. The method of claim 80 wherein the second digitized signal represents a broadband digitization of a composite analog signal that includes a plurality of RF channels.

83. The method of claim 77 further comprising, after transmitting, reconstructing the composite analog signal from the digitized signal at the first communication device.

84. The method of claim 83 further comprising broadcasting the reconstructed composite analog signal into the cell.

85. The method of claim 77 wherein the communications medium is optical fiber.

86. In a wireless communication system, a method of transmitting communications between a first communication device and a second communication device, the first communication device comprising an antenna unit associated with a cell, the second communication device remotely located from the first communication device, the method comprising:

receiving at the first communication device a composite analog signal that as a single composite signal includes a plurality of RF channels;

digitizing the composite analog signal into a digitized signal representing the plurality of RF channels;

transmitting the digitized signal over a communication medium from the first communication device to the second communication device.

87. The method of claim 86 wherein the second communication device is located at a base station.

88. The method of claim 87 wherein the receiving is performed by an antenna at the first communication device receiving a plurality of wireless RF transmissions from telephones located in the cell.

89. The method of claim 87 further comprising reconstructing the composite analog signal from the digitized signal at the base station after transmitting.

90. The method of claim 89 further comprising separating individual channels out of the composite analog signal after reconstructing the composite analog signal from the digitized signal.

91. The method of claim 87 wherein the digitized signal comprises a first digitized signal and wherein the method further comprises transmitting a second digitized signal over the communications medium the second digitized signal being transmitted from the second communication device to the first communication device.

92. The method of claim 91 further comprising combining at the base station a plurality of separate analog outbound telephone signals into a composite analog signal,

and digitizing the composite analog signal as a single signal to form the second digitized signal.

93. The method of claim 92 wherein at least one of control data and error checking data is transmitted over the communication medium with the second digitized signal.

94. The method of claim 86 further comprising reconstructing the composite analog signal from the digitized signal after transmitting the digitized signal over the communication medium.

95. The method of claim 86 wherein the communications are mobile telephone transmissions.

96. The method of claim 86 wherein at least one of control data and error checking data is transmitted over the communication medium with the digitized signal.

97. The method of claim 86 further comprising multiplexing the digitized signal with another digital signal prior to transmitting the digitized signal over the communication medium.

98. The method of claim 97 wherein the another digitized signal is a diversity signal.

99. A wireless communications system in communication with an antenna that receives wireless radio frequency signals from wireless units over a plurality of channels within a frequency band, wherein the antenna outputs an analog radio frequency signal including the frequency band, the system comprising:

a first unit in communication with a second unit using at least one communication medium, the first unit including:

a broadband digitzer unit, in communication with the antenna, that outputs a digitized stream that includes a digitized representation of the frequency band of the analog radio frequency signal, wherein the frequency band includes the plurality of channels; and

wherein the digitzer unit applies a transmission signal to the at least one communication medium for transmission to the second unit, wherein the transmission signal is at least in part derived from the digitized stream; and

wherein the second unit includes a digital unit that receives the transmission signal from the communication medium and generates a reconstructed analog radio frequency signal including the frequency band, the reconstructed analog radio frequency signal being derived from the transmission signal received by the second digital unit.

100. The system of claim 99 wherein the wireless radio frequency signals include transmissions from mobile telephones located in a cell associated with the first unit.

101. The system of claim 99 wherein the transmission signal includes at least one of control data and error checking data.

102. The system of claim 99 wherein the communications medium is optical fiber.

103. The system of claim 99 wherein the transmission signal is a digitally multiplexed signal.

104. The system of claim 103 wherein the digital representation output by the broadband digitizer is a first digital representation and wherein the transmission signal includes a diversity digital representation of the frequency band digitally multiplexed with the first digital representation.

105. The system of claim 99 wherein the wireless communications are mobile telephone signals.